

WHAT IS CLAIMED IS:

Sub
A spread code allocation method in a CDMA cellular, comprising the steps of:

Step
having a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

allocating the second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,

assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,

allocating said combined code to said transmission signal based on said priority, and

diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station.

2. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on

said channel quality value informed.

3. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, and

10 setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority.

4. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed,

10 setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority, and

7. providing an axis of a channel quality value
representing said channel quality value and dividing the
axis of a channel quality value by a plurality of
threshold values to set a channel quality value within
the same value area among a plurality of value areas
generated by the division by said threshold values to
have the same priority of said second code.

5. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
steps of:

at a plurality of said mobile stations, measuring
a channel quality value and informing said base station
of said channel quality value and at said base station,
determining a priority of said combined code based on
said channel quality value informed, and

setting a priority to said first code and setting
a priority of each combined code in a group of combined
codes including the same second code to be higher as
said first code attains a higher priority.

6. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
steps of:

at a plurality of said mobile stations, measuring
a channel quality value and informing said base station
of said channel quality value and at said base station,

determining a priority of said combined code based on said channel quality value informed,

10 setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

15 providing an axis of a channel quality value representing said channel quality value and dividing the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

20 7. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

5 grasping a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount.

8. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

(grasping a) transmission quality required amount

5 required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount, and

10 setting a priority to said second code according
to said transmission quality required amount and setting
a priority of said combined code to be higher as said
second code attains a higher priority.

9. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
steps of:

5 grasping a transmission quality required amount
required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount,

10 setting a priority to said second code according
to said transmission quality required amount and setting
a priority of said combined code to be higher as said
second code attains a higher priority, and

15 providing an axis of a transmission quality
required amount representing said transmission quality
required amount and dividing the axis of a transmission
quality required amount by a plurality of threshold
values to set a transmission quality required amount
within the same value area among a plurality of value

20 areas generated by the division by said threshold values
to have the same priority of said second code.

10. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
steps of:

5 grasping a transmission quality required amount
required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount, and

10 setting a priority to said first code according
to said transmission quality required amount and setting
a priority of each combined code in a group of said
combined codes including the same second code to be
higher as said first code attains a higher priority.

11. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
steps of:

5 grasping a transmission quality required amount
required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount,

10 setting a priority to said first code according
to said transmission quality required amount and setting

a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority, and providing an axis of a transmission quality required amount representing said transmission quality required amount and dividing the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

12. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

grasping a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount, wherein

a transmission error rate is taken as said transmission quality required amount.

13. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

grasping a transmission quality required amount

5 required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount, wherein

10 a transmission rate is taken as said transmission
quality required amount.

14. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
step of

5 grasping a transmission quality required amount
required by a mobile station receiving each said
transmission signal to determine a priority of said
combined code based on said transmission quality
required amount, wherein

10 said transmission quality required amount is
given by a function of a transmission rate and a
transmission error rate.

15. The spread code allocation method in a CDMA
cellular as set forth in claim 1, wherein

5 said mobile station measures a channel quality
value and informs said base station of said channel
quality value, and

said base station checks the number of uses of
each second code by a combined code including the same
second code and determines a priority of said combined

code based on said channel quality value informed and
10 said number of uses of each second code.

16. The spread code allocation method in a CDMA
cellular as set forth in claim 1, wherein

said mobile station measures a channel quality
value and informs said base station of said channel
5 quality value,

said base station checks the number of uses of
each second code by a combined code including the same
second code and determines a priority of said combined
code based on said channel quality value informed and
10 said number of uses of each second code, and which
further comprises the steps of:

when said channel quality value is not less than
a quality threshold value, setting a priority of a
combined code to be higher that includes a second code
15 whose said number of uses of each second code by said
combined code is smaller, and

when said channel quality value is less than said
quality threshold value, setting a priority of a
combined code to be higher that includes a second code
20 whose said number of uses of each second code by said
combined code is larger.

17. The spread code allocation method in a CDMA
cellular as set forth in claim 1, wherein

said mobile station measures a channel quality value and informs said base station of said channel quality value,

said base station checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and which further comprises the step of:

setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

18. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal.

19. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal, and

to said common control signal, a combined code having the highest priority is allocated.

20. The spread code allocation method in a CDMA

cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring
5 a channel quality value and informing said base station
of said channel quality value and at said base station,
determining a priority of said combined code based on
said channel quality value informed, wherein

10 an interference signal power is taken as said
channel quality value.

21. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
step of,

at a plurality of said mobile stations, measuring
5 a channel quality value and informing said base station
of said channel quality value and at said base station,
determining a priority of said combined code based on
said channel quality value informed, wherein

10 a reception power of said common control signal
is taken as said channel quality value.

22. The spread code allocation method in a CDMA
cellular as set forth in claim 1, further comprising the
step of,

at a plurality of said mobile stations, measuring
5 a channel quality value and informing said base station
of said channel quality value and at said base station,

determining a priority of said combined code based on said channel quality value informed, wherein

10 a power ratio of a desired signal to an interference signal is taken as said channel quality value.

23. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, wherein

10 a power ratio of a desired signal to an interference signal is taken as said channel quality value, and further comprising the step of:

15 checking a reception power of a common control signal sent out from a base station being connected and a reception power of said common control signal sent out from a base station not being connected to calculate a power ratio of a desired signal to an interference signal from a ratio of a reception power corresponding to said base station being connected to a reception power corresponding to said base station not being connected.

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24. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein
as said first code set, a orthogonal code is used.

25. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein
as said second code set, a gold code or a part of the gold code is used.

26. A base station in a CDMA cellular, comprising:
a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

means for allocating said second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,

means for assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,

means for allocating said combined code to said transmission signal based on said priority, and

means for diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station.

27. The base station in a CDMA cellular as set forth

in claim 26, wherein

5 said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed.

28. The base station in a CDMA cellular as set forth in claim 26, wherein

5 said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed, and

10 sets a priority to said second code according to said channel quality value and sets a priority of said combined code to be higher as said second code attains a higher priority.

29. The base station in a CDMA cellular as set forth in claim 26, wherein

5 said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed,

10 sets a priority to said second code according to said channel quality values and sets a priority of said combined code to be higher as said second code attains a higher priority, and

provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

30. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed, and

sets a priority to said first code according to said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

31. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed,

sets a priority to said first code according to

said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of (threshold) values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

32. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station grasps a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount.

33. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station grasps a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount, and

sets a priority to said second code according to
said transmission quality required amount and sets a
priority of said combined code to be higher as said
second code attains a higher priority.

34. The base station in a CDMA cellular as set forth
in claim 26, wherein

said base station grasps a transmission quality
required amount required by a mobile station receiving
each said transmission signal to determine a priority of
said combined code based on said transmission quality
required amount,

sets a priority to said second code according to
said transmission quality required amount and sets a
priority of said combined code to be higher as said
second code attains a higher priority, and

provides an axis of a transmission quality
required amount representing said transmission quality
required amount and divides the axis of a transmission
quality required amount by a plurality of threshold
values to set a transmission quality required amount
within the same value area among a plurality of value
areas generated by the division by said threshold values
to have the same priority of said second code.

35. The base station in a CDMA cellular as set forth
in claim 26, wherein

said base station grasps a transmission quality
required amount required by a mobile station receiving
5 each said transmission signal to determine a priority of
said combined code based on said transmission quality
required amount, and

sets a priority to said first code according to
said transmission quality required amount and sets a
10 priority of each combined code in a group of said
combined codes including the same second code to be
higher as said first code attains a higher priority.

36. The base station in a CDMA cellular as set forth
in claim 26, wherein

said base station grasps a transmission quality
required amount required by a mobile station receiving
5 each said transmission signal to determine a priority of
said combined code based on said transmission quality
required amount,

sets a priority to said first code according to
said transmission quality required amount and sets a
10 priority of each combined code in a group of said
combined codes including the same second code to be
higher as said first code attains a higher priority, and

provides an axis of a transmission quality
required amount representing said transmission quality
15 required amount and divides the axis of a transmission
quality required amount by a plurality of threshold

values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

37. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station, and

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code.

38. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station,

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code,

when said channel quality value is not less than a quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said

number of uses of each second code by said combined code is smaller, and

15 when said channel quality value is less than said quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said number of uses of each second code by said combined code is larger.

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39. The base station in a CDMA cellular as set forth in claim 26, wherein

 said base station is informed of a channel quality value measured at said mobile station,

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 checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and

10

 sets a priority to said first code and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.